

# Exploring the Interactions Between ADT and Driveways on the Influences of Crashes on Rural Highways

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# Background

## ■ Highway Safety Manual

- Under development, estimated 2008
- TRB Highway Safety Manual Task Force
- Draft Prototype Chapter (DPC) on rural two-lane highways is available

# Draft Prototype Chapter

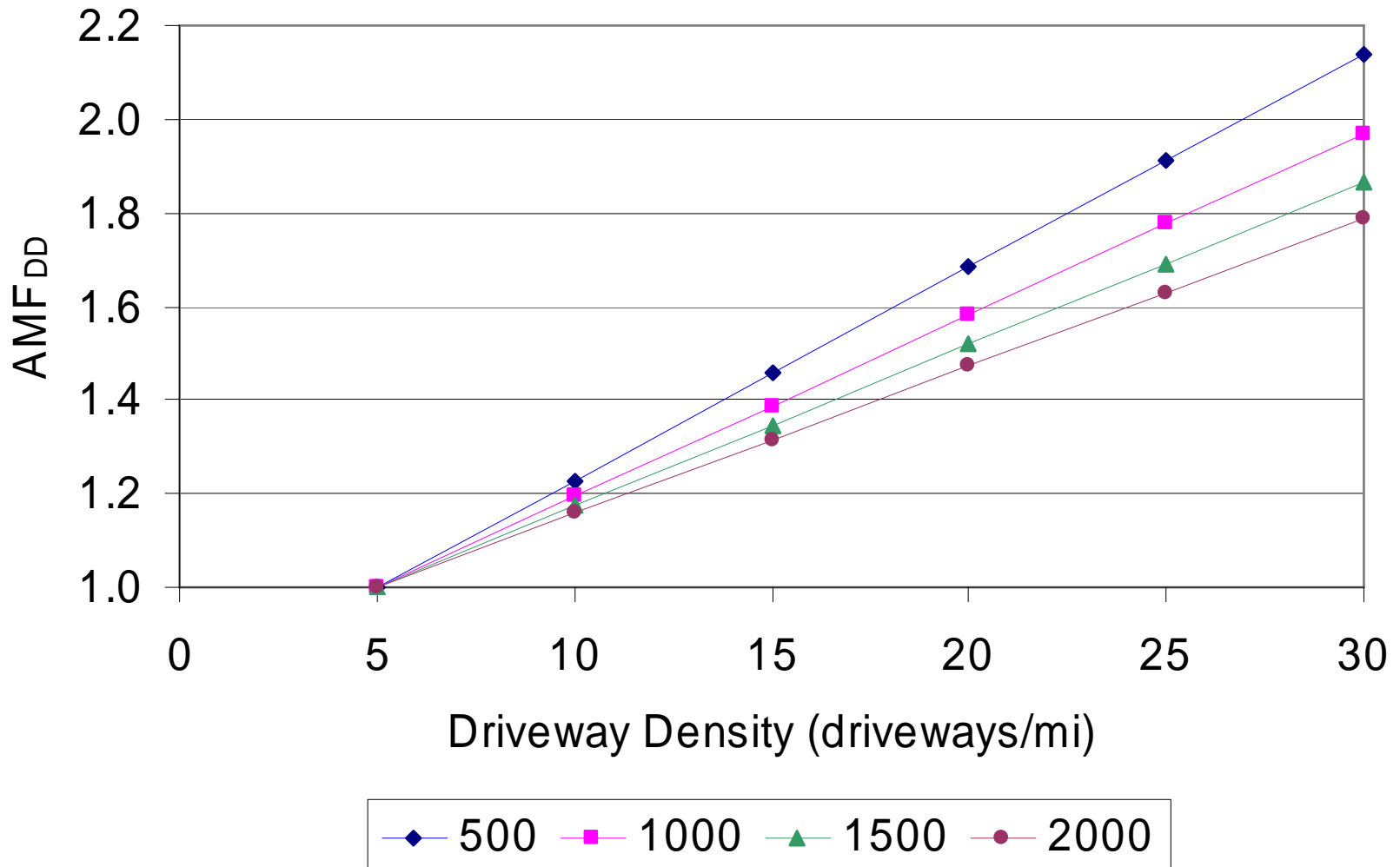
## ■ Basic equation:

$$\text{Num Acc}_{\text{Adjusted}} = N_{\text{Base}} \times C_{\text{Regional}} \times \text{AMFs}$$

## ■ AMFs include:

- Horizontal curve
  - Available in TxDOT database
- Driveway density
  - Not readily available in databases
- Others

# Driveway Density AMF

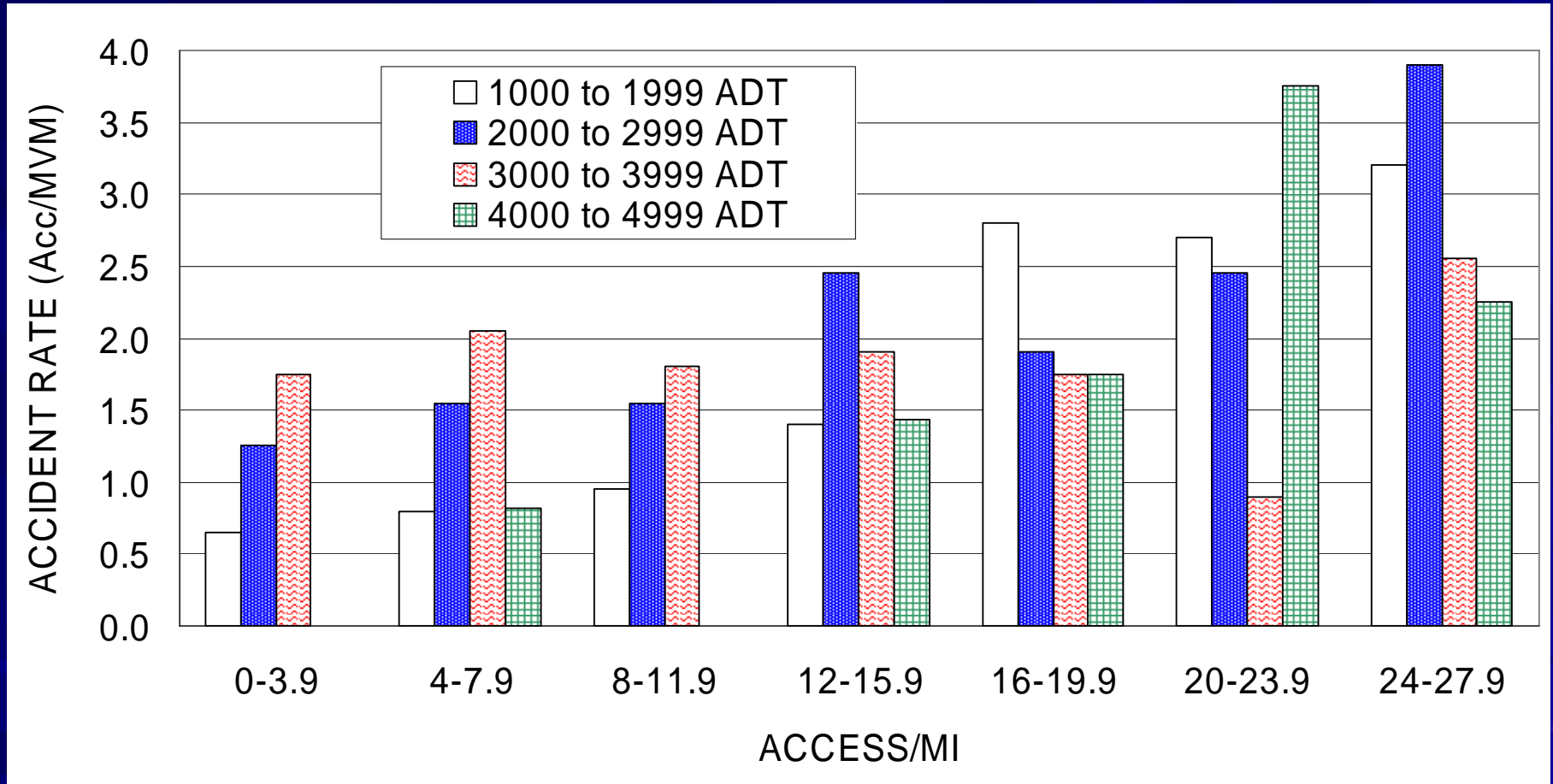


# Objectives

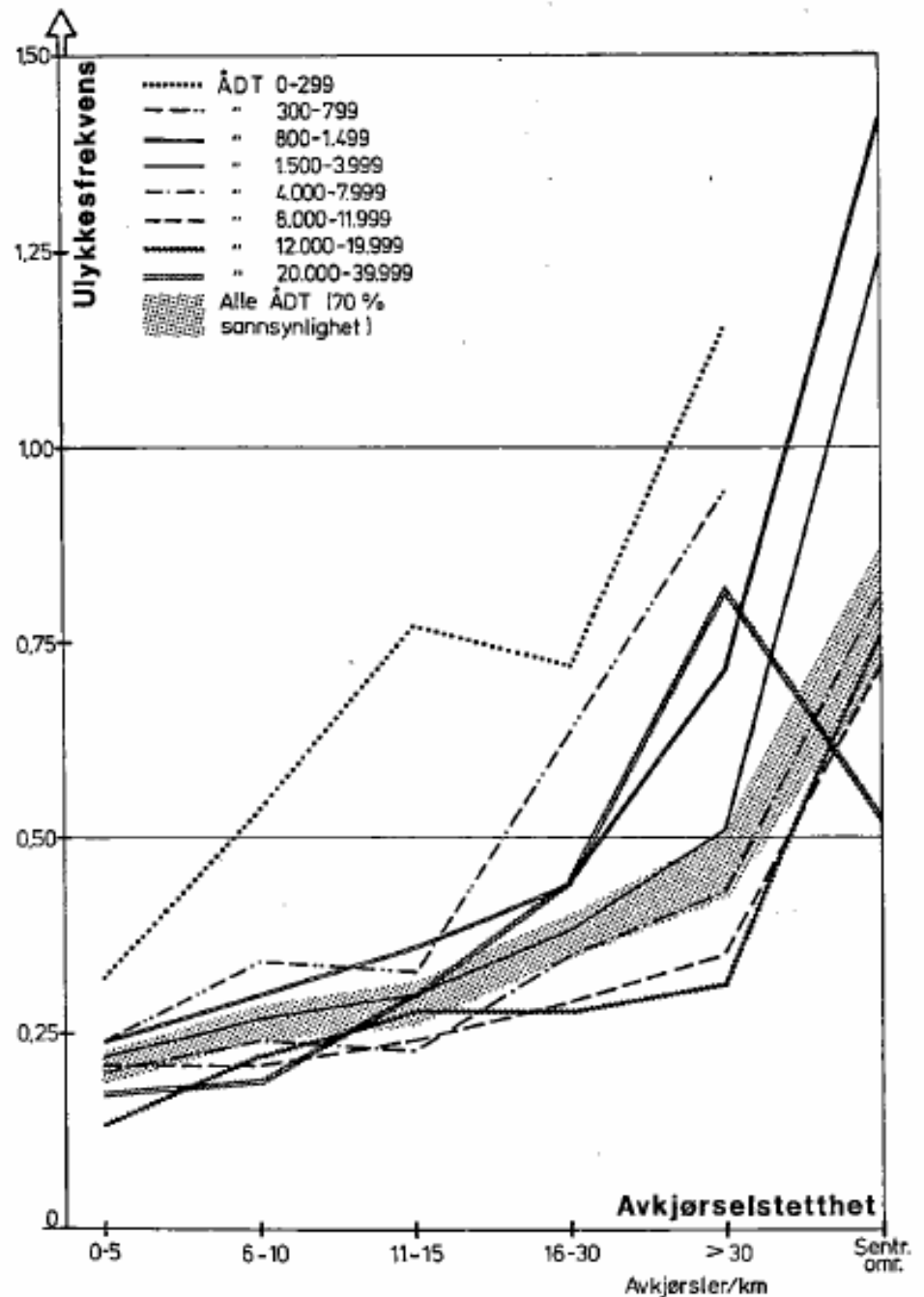
- Identify effects of driveways on number of accidents on rural highways in Texas
- Develop new accident modification factor for driveway density



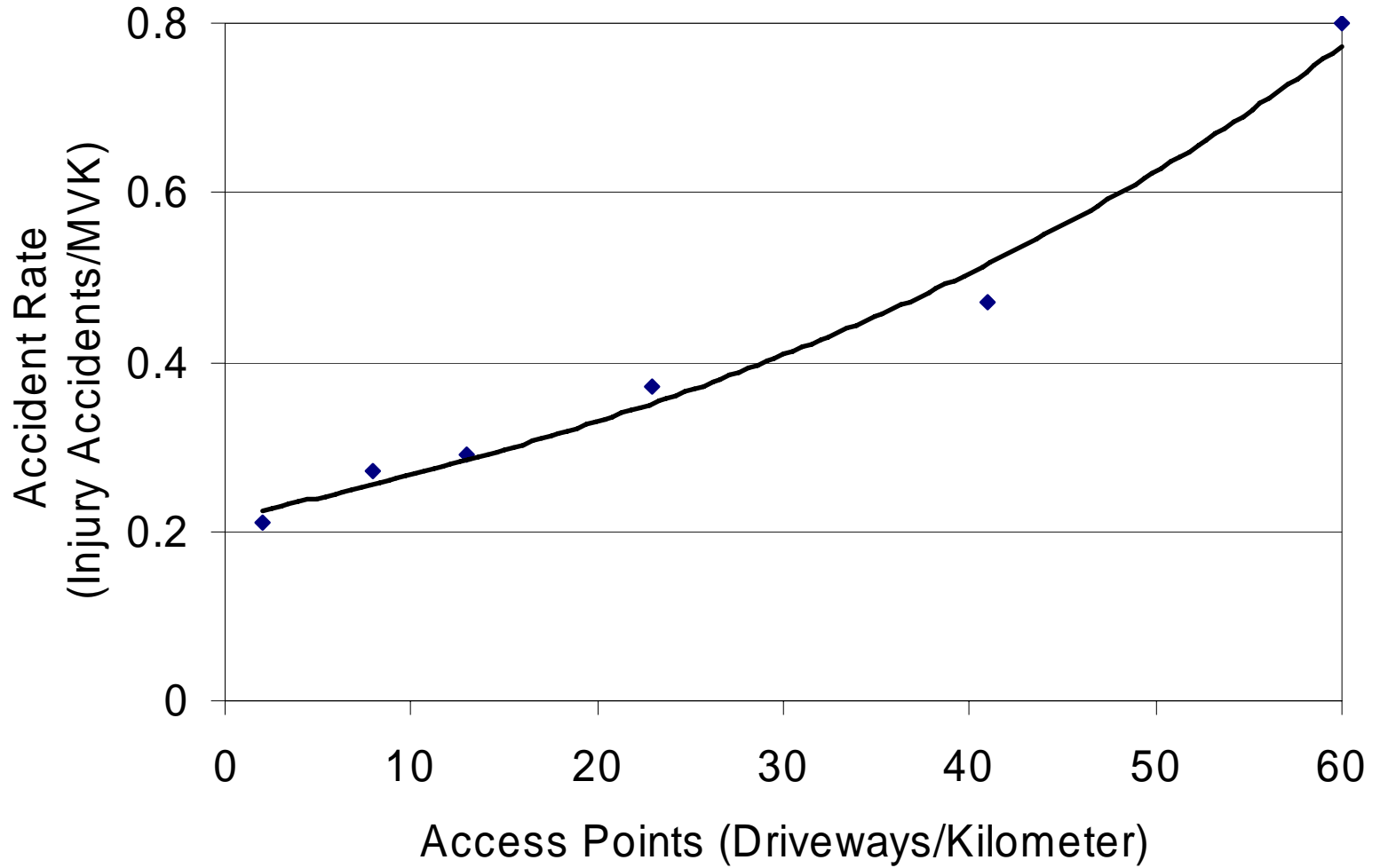
# Transportation Research Circular Number 456



# Muskaug



# Elvik





# Bonneson et al.

- Reviewed previous studies
- Developed generalized AMF equation:

$$AMF_{dd} = e^{[b(Dd-5)]}$$

- Calculated coefficient for previous studies and then estimated complied coefficient (b)

# Literature Findings

- Fairly clear consensus
  - Accident rates increase as number of access points/mile increase
- Not as clear consensus
  - Effects of ADT on driveway density AMF
    - AMF should decrease with increase daily traffic?
    - AMF should increase with increase daily traffic?
    - AMF should be independent to daily traffic?

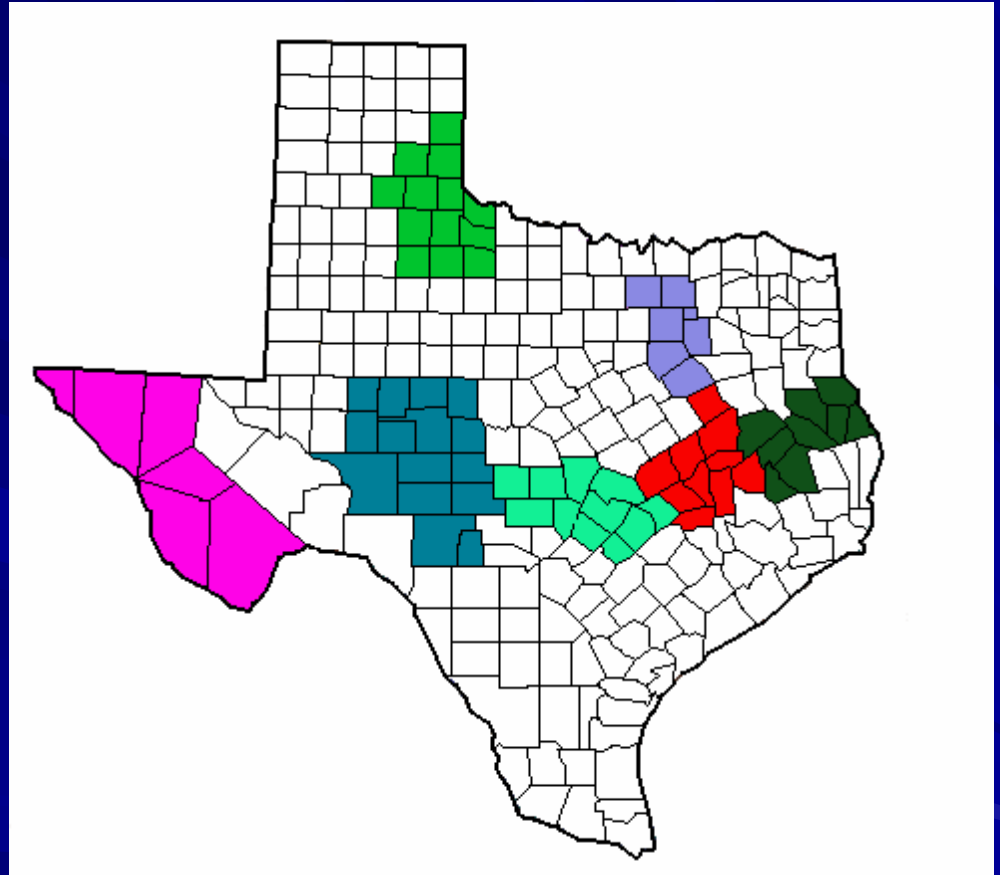
# Another Challenge – Driveway Volume

- To date, no major study has included driveway volume
- Types of driveways can vary widely
- Volumes can vary widely
- Volumes on similar looking driveways can vary widely (may not be able to use surrogates)
- Cost to collect data will limit inclusion



# Texas Study

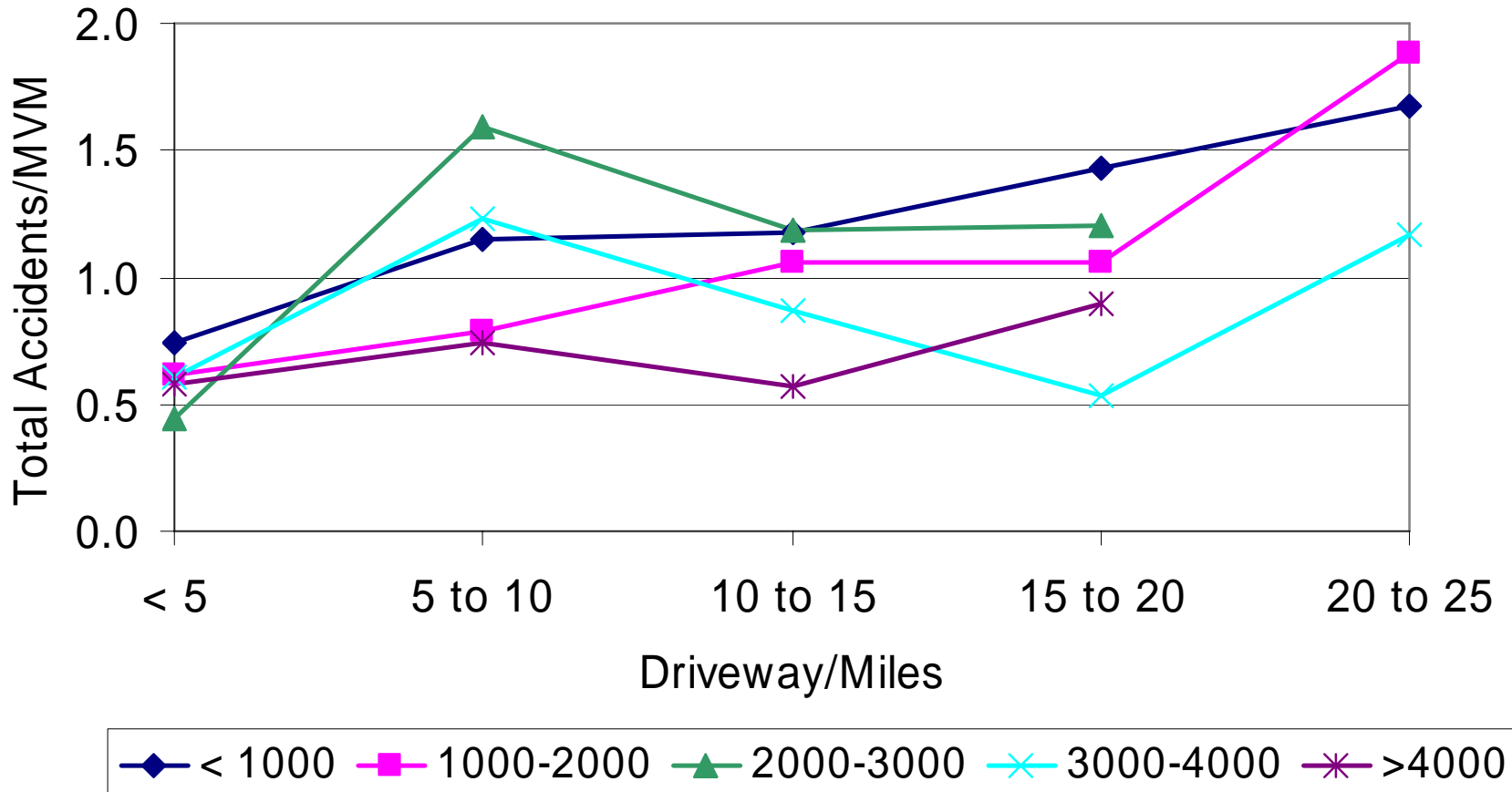
- Austin
- Bryan
- Dallas
- Childress
- El Paso
- Lufkin
- San Angelo



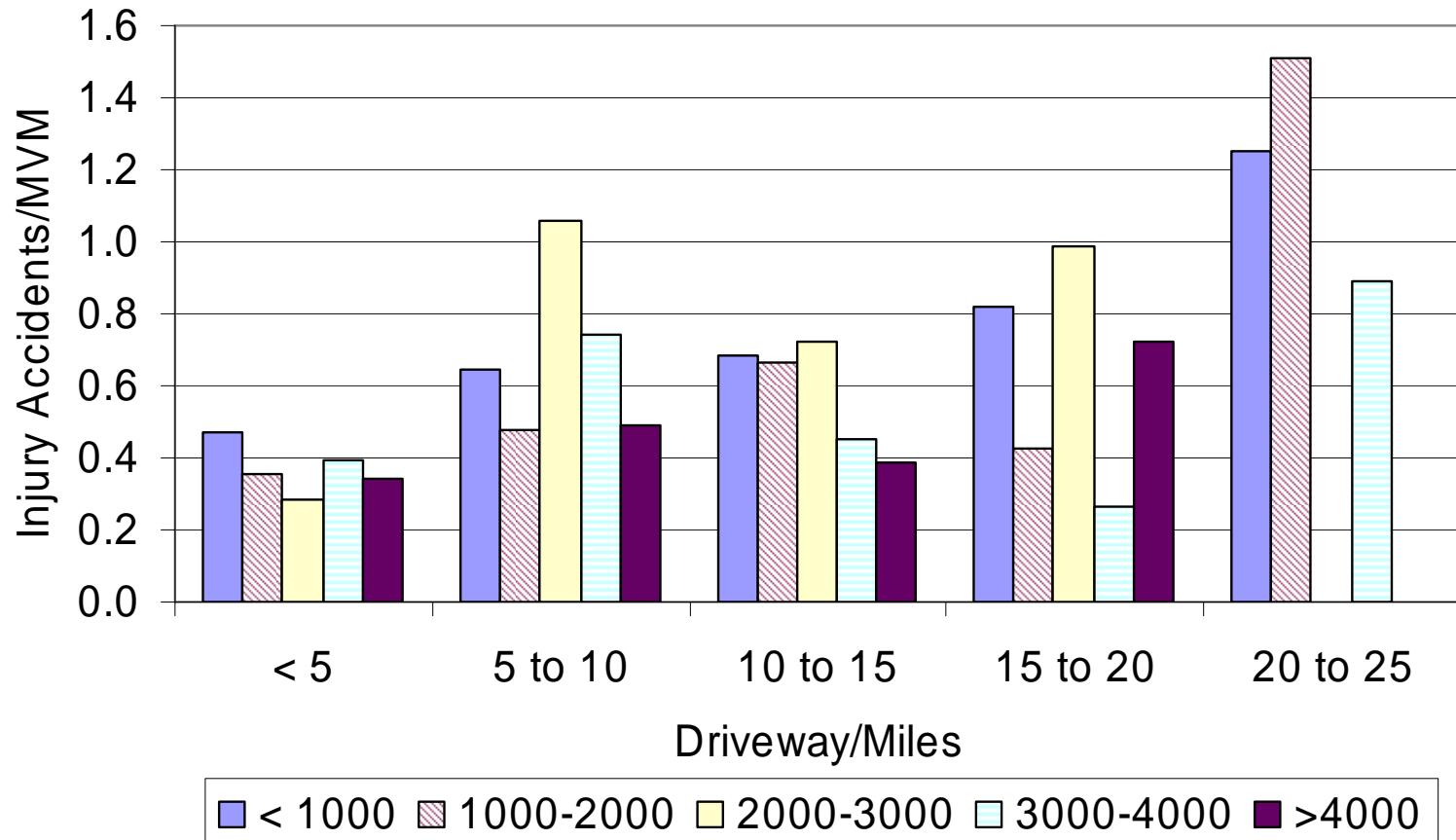
# Field Data Collection



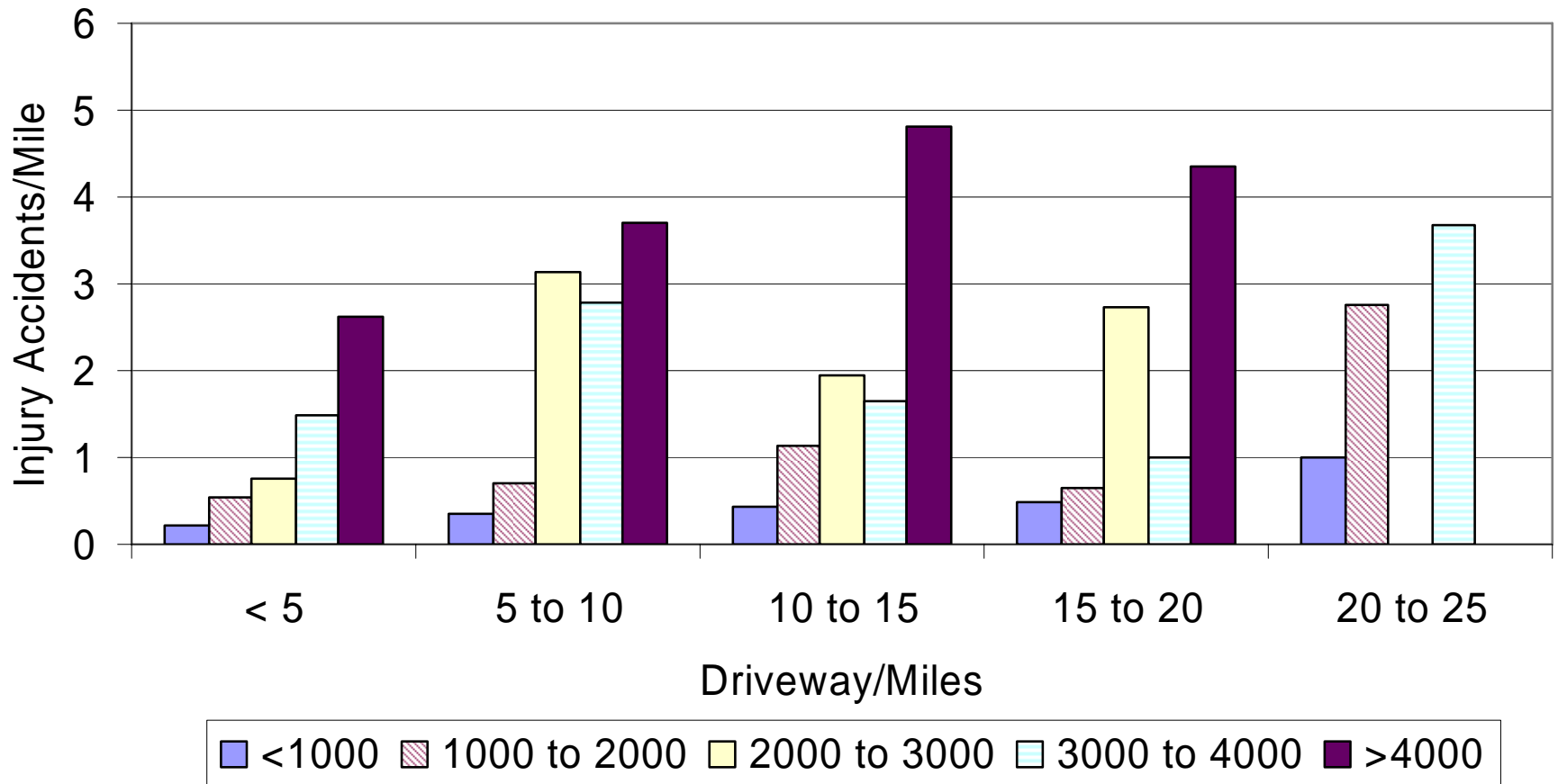
# Two-Lane Highway



# Two-Lane Highway

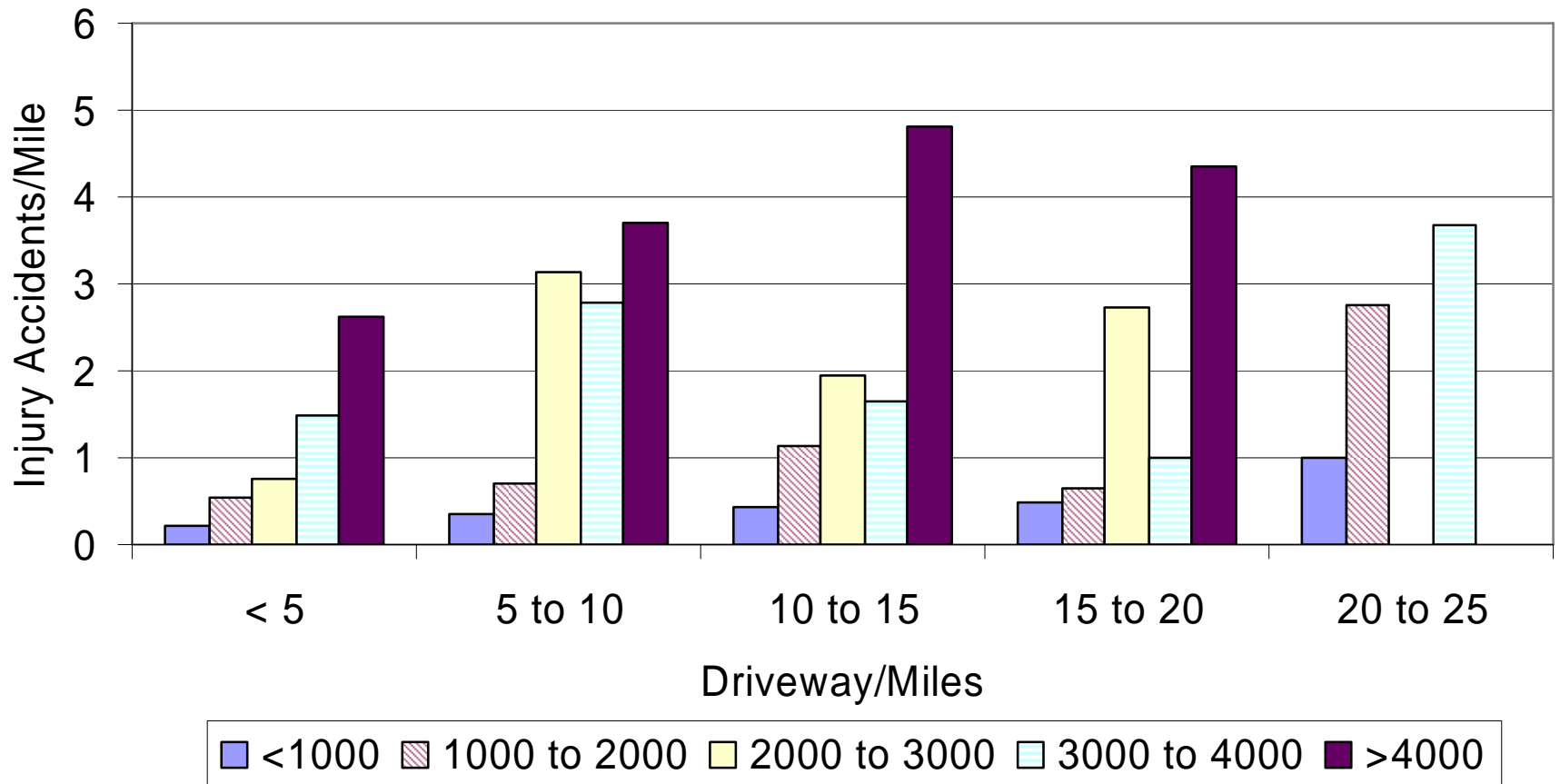


# Two-Lane Highway





# Four-Lane Rural Highway



# Conclusion

- Current DPC
  - Includes ADT along with driveway density within equation to determine AMF for driveways
- Accidents increase as number of access points/mile increase
- Effects of ADT → more research needed to determine if it needs to be part of the driveway density AMF

# QUESTIONS?